

CLAIMS:

1. A power cord retaining system for use with a power tool configured for accommodating an extension cord, said system comprising:

a cord capture formation disposed on the tool for retaining the extension cord disposed on the tool; and

5 a cord channel disposed on an outside surface of the tool and configured for contacting and supporting a loop of the cord substantially along a semi-circular path defined by the loop;

wherein said cord capture formation and said cord channel are disposed in operational relationship to each other on the tool to restrain the
10 loop of the cord in a cord plane, said cord plane being generally parallel to a major axis of the tool.

2. The system of claim 1 wherein said cord capture formation and said cord channel are constructed and arranged on the tool for the user to view said cord channel when the cord is installed and removed.

3. The system of claim 1 wherein the tool has a receptacle for receiving an end of the extension cord, and said cord capture formation and said cord channel are disposed in relation to the tool so that the restrained cord forms only two loop planes when the cord is plugged into the tool.

4. The system of claim 1 wherein said cord capture formation is configured for maintaining an orientation of the cord that prevents bends and kinks in the cord when the cord is retained in the system.

5. The system of claim 1 wherein said cord channel has inclined leading and trailing edges.

6. The system of claim 1 further including a cord lock for securing the cord in said cord channel.

7. A plug retaining system for use with a power tool configured for maintaining electrical continuity between the plug and the tool, said system comprising:

5 contact means configured for engaging the plug disposed on the tool; and
attachment means configured for attaching said contact means to the tool.

8. The plug retaining system of claim 7 wherein said contact means exerts at least one of a radial force and an axial force on the plug.

9. The plug retaining system of claim 7 further comprising a docking enclosure provided on said tool, wherein said attachment means are attached to said docking enclosure.

10. The plug retaining system of claim 7 further comprising a cord retaining system for use with a power tool configured for accommodating an extension cord, said cord retaining system comprising:

a cord capture formation for retaining the extension cord disposed
5 on the tool; and

a cord channel disposed on the tool and configured for supporting a loop of the cord substantially along an arc defined by the loop.

11. The plug retaining system of claim 7 wherein said attachment means includes:

a ring disposed on the tool configured for attaching said contact means to the tool; and said contact means includes at least one finger extending
5 from said ring configured for engaging the plug.

12. The plug retaining system of claim 11 wherein said at least one finger further comprises:

a tapered portion extending generally axially from said ring;
a flared portion extending generally axially from said ring; and

5 a contact surface configured for engaging the plug, wherein said contact surface is formed between said tapered portion and said flared portion.

13. The plug retaining system of claim 11 wherein said ring further comprises at least one attachment formation, wherein one of said at least one attachment formation is an aperture, a ridge, a slit and a smooth surface configured for engaging corresponding structure on the tool.

14. The plug retaining system of claim 7 wherein said attachment means includes:

 at least one latch disposed on the tool and configured for attaching said contact means to the tool; and said contact means includes at
5 least one clamp extending radially from said at least one latch and configured for engaging the plug.

15. The plug retaining system of claim 14 wherein said at least one clamp further comprises a spring attached to said at least one latch and a clamp member disposed at a distal end of said spring, wherein said at least one latch is configured for transmitting force to said at least one clamp to engage
5 the plug.

16. The plug retaining system of claim 14 further comprising a docking enclosure provided on the tool, wherein said clamp protrudes through an aperture in said docking enclosure.

17. The plug retaining system of claim 7 wherein said contact means includes:

a cradle partially conforming to the shape of the plug configured for engaging the plug; and said attachment means includes a tether attached to
5 said cradle and to the tool configured for attaching said cradle to the tool.

18. The plug retaining system of claim 17 wherein said cradle includes:

a crown on said cradle configured to be proximately located to a cord-extending surface of the plug, wherein said crown includes a cord-
5 receiving portion configured for receiving a cord from said cord-extending surface of the plug; and

at least one leg extending from said crown and configured for attaching said cradle to the tool.

19. The plug retaining system of claim 18 wherein said cradle includes:

a foot disposed at a distal end of said at least one leg configured for engaging the tool; and

5 a flexure portion located on said at least one leg configured for releasing said foot from the tool.

20. The plug retaining system of claim 7 wherein said attachment means includes:

 a tether configured for attachment to the tool; and said contact means includes a wrap disposed at a distal end of said tether and configured for
5 engaging a loop of the cord.

21. The plug retaining system of claim 20 further comprising: fastening means disposed at at least one location on said wrap, wherein said wrap is configured to be removably connected to itself.

22. The plug retaining system of claim 21 wherein said wrap and said tether are disposed in operational relationship to each other when the loop of the extension cord is encircled to restrain the loop along a cord axis, said cord axis being generally parallel to a major axis of the tool.

23. The plug retaining system of claim 7 wherein said contact means includes:

 a clamp configured for engaging the plug; and said attachment means includes at least one support rib disposed on the tool and configured for
5 attaching said clamp to the tool.

24. The plug retaining system of claim 23 wherein said clamp further comprises:

a push-button member slidably disposed on the tool; and

a clamp member disposed on the tool adjacent said push-button member;

wherein said push-button member is configured for positioning said clamp member into engagement with the plug.

25. The plug retaining system of claim 24 wherein said push-button member further comprises:

a contact portion disposed on said push-button member configured for contact with the user;

an engaging portion disposed on said push-button member configured for deforming and displacing said clamp member into engagement with the plug; and

a catch disposed generally centrally on said push-button member configured for retaining said push-button member in an inward and an outward position.

26. The plug retaining system of claim 7 wherein said attachment means includes:

a collar rotatably disposed on the tool configured for attaching
said contact means to the tool; and said contact means includes at least one
5 spline associated with said collar and configured for engaging the plug.

27. The plug retaining system of claim 26 wherein said at least
one spline has a free end and a fixed end, said free end configured for
deforming and displacing upon engagement with a locating structure disposed
on the tool.

28. The plug retaining system of claim 27 wherein said
locating structure comprises at least one pawl and at least one stop, and
wherein said at least one spline comprises at least one notch, said at least one
pawl and said at least one notch are configured for permitting limited rotation
5 of said collar, and said at least one stop is configured for preventing rotation of
said collar.

29. A plug retaining system for use with a power tool
configured for maintaining electrical continuity between the plug and the tool,
said system comprising:

a ring disposed on the tool configured for attaching said contact
5 means to the tool; and

at least one finger extending from said ring configured for
engaging the plug;

wherein said at least one finger exerts at least one of a radial and an axial force of the plug.

30. The plug retaining system of claim 29 wherein said at least one finger further comprises:

a tapered portion extending generally axially from said ring;

a flared portion located at a distal end of said at least one finger;

5 and

a contact surface configured for engaging the plug, wherein said contact surface is formed between said tapered portion and said flared portion.

31. The plug retaining system of claim 29 wherein said ring further comprises at least one attachment formation, wherein one of said at least one attachment formation is an aperture, a ridge, a slit and a smooth surface configured for engaging corresponding structure on the tool.

32. The plug retaining system of claim 31 wherein said ring is friction fit into said at least one locating structure.

33. A retaining system including a cord retaining system and a plug retaining system, said cord retaining system configured for accommodating an extension cord on a power tool, and said plug retaining

system configured for maintaining electrical continuity between the plug and

5 the tool, the retaining system comprising:

contact means for engaging the plug disposed on the tool;

attachment means configured for attaching said contact means to
the tool;

a cord capture formation for retaining the extension cord disposed
10 on the tool; and

a cord channel disposed on the tool and configured for contacting
and supporting a loop of the cord substantially along an arc defined by the
loop.